

# Performance test bench

400 kW | 310 km/h | 1 MW cooling output





- ✓ Performance measurements and calibration at high speeds which cannot be replicated on the road
- ✓ Practical testing of components and systems under maximum vehicle load
- ✓ Faster development times due to high reproducibility thanks to automation technology
- ✓ Fuel supply thanks to integrated filling system in the test bench
- ✓ AC/DC charging station in the test cell

### SCOPE OF SERVICES

Bosch Engineering's performance test bench makes it possible to measure performance and calibrate at high speeds. Functional and long-term testing under full-load conditions as well as measurements of energy efficiency and acceleration behavior can be performed on vehicles or vehicle parts. Reversing at speeds up to 20 km/h, including incline simulations as well as tests on electric vehicles can also be carried out on the performance test bench. In addition to performance measurements, driving cycles such as MNEDC, FTP-75, WLTP, RDE, road simulations, or even customer-specific driving cycles can also be modeled.

A filling station integrated in the test bench as well as an integrated wall box (AC 22 kW) and a mobile charger (DC 44 kW) allow for only short interruptions during endurance tests. Driving robots and accelerator pedal actuators can also be used in this process.

The configuration of the performance test bench enables the engine performance to be determined specifically in accordance with legal regulations (DIN 70020, ISO 1585, etc.). Vehicles can be tested with a overall power output of up to 400 kW (continuous output and 550 kW brief peak output) with speeds up to 310 km/h, even under extreme conditions which cannot be modeled on the road.

The dynamometer's temperature range can also be regulated between +18°C and +35°C and optionally up to +40°C under specific conditions. Furthermore, we also offer extremely precise measuring equipment and our years of experience in evaluating results for developing and optimizing state-of-the-art vehicle systems.

### TECHNICAL FEATURES

|                      |  |
|----------------------|--|
| Climate conditioning | Dyno temperature range +18°C to +35°C, optionally up to +40°C  |
| Vehicle conditioning | In the climate box on request (-40°C to +45°C)   |
| Blower system        | <ul style="list-style-type: none"> <li>■ Flow rate up to 250,000 m<sup>3</sup>/h</li> <li>■ Wind speed up to 250 km/h</li> <li>■ Exhaust gas extraction 12,000 m<sup>3</sup>/h</li> <li>■ &gt; 1 MW cooling performance</li> </ul> |

|                                    |   |
|------------------------------------|---|
| Driving cycles/<br>operating modes | <ul style="list-style-type: none"> <li>■ Driving cycles such as MNEDC, FTP-75, WLTP, RDE</li> <li>■ Customer-specific driving cycles</li> <li>■ Road simulation (free driving, forward, and reversing)</li> <li>■ Ramps</li> <li>■ Engine performance map mode (constant speed, power)</li> </ul> |
|------------------------------------|---|

### ROLLER SET

|                   |  |
|-------------------|--|
| Crown roller dyno | MAHA 48" AWD crown roller dyno   |
| Power output      | <ul style="list-style-type: none"> <li>■ FWD: 220 kW</li> <li>■ RWD/AWD: 400 kW (AWD peak 550 kW)</li> </ul> |
| Maximum speed     | 310 km/h   |
| Axle spacing      | 1.80 m to 4.20 m   |
| Inertial mass     | < 11,000 lbs   |
| Axle load         | max. 2,000 kg  |

### ENDURANCE TESTS

|                  |  |
|------------------|--|
| Driving robot    | Actuators for gas, brake, clutch, shifting, engine start (key start and start button) with freely parameterizable driving styles (lazy and high-precision modes) |
| Filling station  | Standard, special fuels available  |
| Charging station | <ul style="list-style-type: none"> <li>■ AC 22 kW wallbox</li> <li>■ DC 44 kW mobile chargers</li> <li>■ DC 150 kW outside test cell</li> </ul>                  |

### UNTREATED EXHAUST GAS MEASURING EQUIPMENT

|  |   |
|--|---|
| Measuring equipment                          | Determination of the particulate count (10 and 23 nm) |
| Determination of the exhaust gas volume flow | Pitot tube flow meter (PTFM) 0 to 10,000 l/min        |

### ADDITIONAL MEASURING EQUIPMENT

|                                |   |
|--------------------------------|---|
| Electrical measuring equipment | HIOKI PW3390 for electrical power balancing |
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